UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/594,134	09/25/2006	Hiroyuki Inokuchi	Q96717	7281

23373 7590 04/29/2009
SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER	
LEE, GENE W	

ART UNIT	PAPER NUMBER
2629	

MAIL DATE	DELIVERY MODE
04/29/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/594,134	INOKUCHI, HIROYUKI	
	Examiner	Art Unit	
	Gene W. Lee	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 September 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *9/25/2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *09/25/2006; 04/06/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Signal Processing System for a Pointing Input Device.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. **Claims 1, 3, and 4 are rejected** under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,486,871 (Marten '871) in view of U.S. Patent No. 6,429,850 (Marten '850).

4. Regarding claim 1, Marten '871 teaches a signal processing system for processing signals outputted from a pointing device (Abstract), said signal processing system comprising an amplifier for amplifying a detection signal outputted by operating an operation console of the pointing device, along an x-axis direction thereof, for amplifying a detection signal outputted by operating the operation console, along a y-axis direction thereof (Fig. 1 at 14), a switching circuit for alternately switching over between respective output signals by the predetermined period before outputting (Fig. 1

at 12), and a circuit for ac-grounding an output side of the switching circuit for predetermined time upon switchover of the switching circuit (Fig. 1 at 35, 40). Marten '871 does not explicitly teach a separate operational amplifier for amplifying the y-axis signal, nor where the switching circuit switches over between the output signals of the first and second amplifiers to thereby output the switched output signal. However, Marten '850 does teach the use of amplifiers to amplify axis signals individually (Fig. 1). Marten '871 teaches an arrangement that minimizes the switches and amplifier to one apiece, but other arrangements utilizing more switches and amplifiers are clearly possible that output the same results, including the arrangement of claim 1. Forming such variations in arrangements is a matter of basic circuit logic and design that would be fundamental for one of ordinary skill in the art. Therefore it would have been obvious to one of ordinary skill in the art to be able to combine the teachings of Marten '871 and Marten '850 to produce the device of claim 1.

5. Regarding claims 3-4, Marten '871 teaches a signal processing system for processing signals outputted from a pointing device (Abstract), the pointing device comprising detection means capable of outputting respective detection signals outputted by operating an operation console in plus and minus directions, along an x-axis, and a y-axis, thereof, respectively, in such a way as to identify whether an operation is in either the plus direction or the minus direction, along the x-axis, and the y-axis, respectively (Fig. 1 at 1), or in both the plus and minus directions, along the x-axis, and the y-axis, respectively (Fig. 1 at 1), a first outputting means for fetching the detection signals outputted by the operation in either the plus direction or the minus

direction, along the x-axis, and the y-axis, respectively, from the detection means (Fig. 1 at 7), and a second outputting means for fetching the detection signals outputted by the operations in both the plus and minus directions, along the x-axis, and the y-axis, respectively (Fig. 1 at 7), said signal processing system comprising a switching circuit for alternately switching over between the detection signals by the operation along an x-axis direction, and a y-axis direction, respectively, outputted from the first outputting means, before outputting (Fig. 1 at 12), an amplifier for amplifying the detection signals by the operation along the x-axis direction, and the y-axis direction, respectively, outputted from the switching circuit, the amplifier for amplifying output signals of the second outputting means (Fig. 1 at 14), and a circuit for ac-grounding an output side of the switching circuit for predetermined time upon respective switchovers of the switching circuit (Fig. 1 at 35, 40), wherein the detection means comprises a first resistance element having a resistance value undergoing a change corresponding to a load applied thereto, by the operation in the plus direction, along the x-axis (col. 2, lines 35-65), a second resistance element connected in series to the first resistance element, having a resistance value undergoing a change corresponding to a load applied thereto, by the operation in the minus direction, along the x-axis (col. 2, lines 35-65), a third resistance element having a resistance value undergoing a change corresponding to a load applied thereto, by the operation in the plus direction, along the y-axis (col. 2, lines 35-65), and a fourth resistance element connected in series to the third resistance element, having a resistance value undergoing a change corresponding to a load applied thereto, by the operation in the minus direction, along the y-axis (col. 2, lines 35-

65), and a terminal connected to a node between the first and second resistance elements, and a terminal connected to a node between the third and fourth resistance elements serve as the first outputting means while a terminal connected to the end of each of the series-connected circuits serves as the second outputting means (Fig. 1 at 7). Marten '871 does not explicitly teach a separate operational amplifier for amplifying the clicking signal, nor a second switching circuit for switching over between the output signals of the first and second amplifiers to thereby output the switched output signal, nor wherein a power supply is fed to one end of each of series-connected circuits, and the second outputting means is connected on a side adjacent to the power supply. However, Marten '850 does teach the use of amplifiers to amplify axis signals individually (Fig. 1), and a power supply is fed to one end of each of series-connected circuits (Fig. 1 at +V). Marten '871 teaches an arrangement that minimizes the switches and amplifier to one apiece, but other arrangements utilizing more switches and amplifiers are clearly possible that output the same results, including the arrangement of claims 3-4. Forming such variations in arrangements is a matter of basic circuit logic and design that would be fundamental for one of ordinary skill in the art. Therefore it would have been obvious to one of ordinary skill in the art to be able to combine the teachings of Marten '871 and Marten '850 to produce the devices of claims 3-4.

6. **Claims 1-6 are rejected**, with claims 1, 3, and 4 being rejected in the alternative, under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,486,871 (Marten '871) in view of U.S. Patent No. 6,429,850 (Marten '850) and official notice of grounded low pass filters.

7. Regarding claims 1-2, Marten '871 teaches a signal processing system for processing signals outputted from a pointing device (Abstract), said signal processing system comprising an amplifier for amplifying a detection signal outputted by operating an operation console of the pointing device, along an x-axis direction thereof, for amplifying a detection signal outputted by operating the operation console, along a y-axis direction thereof (Fig. 1 at 14), a switching circuit for alternately switching over between respective output signals by the predetermined period before outputting (Fig. 1 at 12). Marten '871 does not explicitly teach a separate operational amplifier for amplifying the y-axis signal, nor plural switching circuits for switching over between the output signals of the first and second amplifiers to thereby output the switched output signal, nor wherein a second switching circuit connected to both ends of the resistor is turned on upon the switchover of the first switching circuit, and is turned off after the elapse of predetermined time from the switchover, nor a circuit for ac-grounding an output side of the switching circuit for predetermined time upon switchover of the switching circuit that comprises a first low pass filter made up of a resistor and a capacitor, connected between the output side of the first switching circuit and the ground. However, Marten '850 does teach the use of amplifiers to amplify axis signals individually (Fig. 1). Marten '871 teaches an arrangement that minimizes the switches and amplifier to one apiece, but other arrangements utilizing more switches and amplifiers are clearly possible that output the same results, including the arrangement of claim 3. Forming such variations in arrangements is a matter of basic circuit logic and design that would be fundamental for one of ordinary skill in the art. Therefore it would

have been obvious to one of ordinary skill in the art to be able to combine the teachings of Marten '871 and Marten '850 to produce a pointing device signal processing circuit with one amplifier for each x and y axis signal, and switching circuits to switch among the amplifier outputs. Neither Marten '871 nor Marten '850 explicitly teach a circuit for ac-grounding an output side of the switching circuit for predetermined time upon switchover of the switching circuit that comprises a first low pass filter made up of a resistor and a capacitor, connected between the output side of the first switching circuit and the ground. However, official notice is taken that the use of grounded low pass filters that comprise a resistor and capacitor is well known in the art of electronics. Such low pass filters are commonly used to reduce noise and to limit bandwidth, and can generally be found in typical electronics textbooks. Therefore it would have been obvious to one of ordinary skill in the art to combine the teachings of Marten '871, Marten '850 and the knowledge of grounded low pass filters to produce the devices of claims 1-2.

8. Regarding claims 3-5, Marten '871 teaches a signal processing system for processing signals outputted from a pointing device (Abstract), the pointing device comprising detection means capable of outputting respective detection signals outputted by operating an operation console in plus and minus directions, along an x-axis, and a y-axis, thereof, respectively, in such a way as to identify whether an operation is in either the plus direction or the minus direction, along the x-axis, and the y-axis, respectively (Fig. 1 at 1), or in both the plus and minus directions, along the x-axis, and the y-axis, respectively (Fig. 1 at 1), a first outputting means for fetching the

detection signals outputted by the operation in either the plus direction or the minus direction, along the x-axis, and the y-axis, respectively, from the detection means (Fig. 1 at 7), and a second outputting means for fetching the detection signals outputted by the operations in both the plus and minus directions, along the x-axis, and the y-axis, respectively (Fig. 1 at 7), said signal processing system comprising a switching circuit for alternately switching over between the detection signals by the operation along an x-axis direction, and a y-axis direction, respectively, outputted from the first outputting means, before outputting (Fig. 1 at 12), an amplifier for amplifying the detection signals by the operation along the x-axis direction, and the y-axis direction, respectively, outputted from the switching circuit, the amplifier for amplifying output signals of the second outputting means (Fig. 1 at 14), wherein the detection means comprises a first resistance element having a resistance value undergoing a change corresponding to a load applied thereto, by the operation in the plus direction, along the x-axis (col. 2, lines 35-65), a second resistance element connected in series to the first resistance element, having a resistance value undergoing a change corresponding to a load applied thereto, by the operation in the minus direction, along the x-axis (col. 2, lines 35-65), a third resistance element having a resistance value undergoing a change corresponding to a load applied thereto, by the operation in the plus direction, along the y-axis (col. 2, lines 35-65), and a fourth resistance element connected in series to the third resistance element, having a resistance value undergoing a change corresponding to a load applied thereto, by the operation in the minus direction, along the y-axis (col. 2, lines 35-65), and a terminal connected to a node between the first and second resistance

elements, and a terminal connected to a node between the third and fourth resistance elements serve as the first outputting means while a terminal connected to the end of each of the series-connected circuits serves as the second outputting means (Fig. 1 at 7). Marten '871 does not explicitly teach a separate operational amplifier for amplifying the clicking signal, nor a second switching circuit for switching over between the output signals of the first and second amplifiers to thereby output the switched output signal, nor wherein a power supply is fed to one end of each of series-connected circuits, and the second outputting means is connected on a side adjacent to the power supply. However, Marten '850 does teach the use of amplifiers to amplify axis signals individually (Fig. 1), and a power supply is fed to one end of each of series-connected circuits (Fig. 1 at +V). Marten '871 teaches an arrangement that minimizes the switches and amplifier to one apiece, but other arrangements utilizing more switches and amplifiers are clearly possible that output the same results, including the arrangement of claims 3-5. Forming such variations in arrangements is a matter of basic circuit logic and design that would be fundamental for one of ordinary skill in the art. Therefore it would have been obvious to one of ordinary skill in the art to be able to combine the teachings of Marten '871 and Marten '850 to produce a pointing device signal processing circuit with one amplifier for the x and y axis signals and a second for the z-axis signal, and switching circuits to switch among signals and the amplifier outputs. Neither Marten '871 nor Marten '850 explicitly teach a circuit for ac-grounding an output side of the switching circuit for predetermined time upon switchover of the switching circuit that comprises a first low pass filter made up of a resistor and a capacitor,

connected between the output side of the first switching circuit and the ground. However, official notice is taken that the use of grounded low pass filters that comprise a resistor and capacitor is well known in the art of electronics. Such low pass filters are commonly used to reduce noise and to limit bandwidth, and can generally be found in typical electronics textbooks. Therefore it would have been obvious to one of ordinary skill in the art to combine the teachings of Marten '871, Marten '850 and the knowledge of grounded low pass filters to produce the devices of claims 3-5.

9. Regarding claims 6/2 and 6/5, neither Marten '871 nor Marten '850 explicitly teach a second low pass filter for removing low frequency noises of the output signal of the first amplifier, and a third low pass filter for removing low frequency noises of the output signal of the second amplifier, wherein an upper cut-off frequency of the first low pass filter is set lower than respective upper cut-off frequencies of the second and third low pass filters. However, official notice is taken that low-pass filters are well known in the art of electronics. Such low pass filters are commonly used to reduce noise and to limit bandwidth, and can various arrangements can generally be found in typical electronics textbooks, with the intention off allowing engineers to employ them in various permutations. Therefore it would have been obvious to one of ordinary skill in the art to combine the teachings of Marten '871, Marten '850 and the knowledge of grounded low pass filters to produce the devices of claims 6/2 and 6/5.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent Publication No. 2003/0085874 (Burry) discloses a pointing device.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gene W. Lee whose telephone number is 571-270-7148. The examiner can normally be reached on Monday-Thursday, 9am-6pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amare Mengistu can be reached on 571-272-7674. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/GWL/

/Amare Mengistu/
Supervisory Patent Examiner, Art Unit 2629